

Activities on breeding and use of varieties and genetic resources for organic fruit production in Austria

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Abstract

Ongoing activities in Austria regarding the evaluation and use of genetic resources for organic fruit production and participatory breeding within the European project InnOBreed are presented as an interacting and fostering development on the national level for building an Austrian participatory breeding network.

Keywords: evaluation of genetic resources, participatory breeding network, peach, apple

Introduction

BOKU University is involved in the EU-funded project InnOBreed (Innovative Organic Fruit Breeding and Uses) with the aim to find innovative solutions for the participatory development of fruit varieties for the particular challenges of organic farming. Integrated activities of BOKU on the EU Level inspired and enhanced further steps and development on the national level.

Material and Methods

At BOKU University in Austria, the activities are focused on peach and apple breeding and evaluation on local genetic resources, actively collaborating in a network of public institutions and NGOs (ARGE Streuobst), which is working on pomological topics and on the re-use of endangered and robust fruit genetic resources for organic and extensive orchards.

Key elements for the evaluation and the use of genetic resource developed and used within InnOBreed are:

- Standardization (across fruit species) of assessment scales in international descriptors and adaptation to the specific requirements of organic farming, e.g., for pests, to enable international comparison of data collected within the project and beyond
- Prioritization of parameters for the evaluation of genetic resources (e.g., flowering data, specific pests and diseases, overall tree and leaf vigour to characterize a certain robustness of a variety)
- Participatory approach, involving and considering regional businesses and stakeholders throughout the entire fruit production chain

Results and Discussion

From 2023 to 2025, data for the evaluation of genetic resources was recorded at BOKU University on apple, peach, apricot, cherry, and pear, as well as in the apple gene banks of BA/HBLA Klosterneuburg in Kierling, of the LVZ Haidegg in Wagersbach and OSOGO in Ohlsdorf which were accompanied by the genetic characterization of the varieties in the project "Fruit Inventory Austria" lead by Arche Noah.

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In 2017 and the following years, first crosses with suitable genitors were made on peach, based on long-term observations in an organically managed orchard.

In the ongoing selection process, focused on fruit quality traits, as well as robustness to pests and diseases (e.g., *Taphrina deformans*, brown rot on fruit) we identified several promising selections, which were grafted and planted in 2025/2026 at several different locations for further observations.

For apples we started with some first crossing experiments in 2018, but we are still in the process of identifying suitable parents, with regard to changing climate conditions.

Inspired and encouraged through the InnOBreed project, in May 2025, we initiated the building of a participatory breeding network with the aim to integrate some local organic fruit growers and gardeners, additionally to already existing partners of the network 'Streuobst Austria' and key players and interested partners from nurseries, NGOs and research institutions to promote collaboration and further advancement towards a participatory development of fruit varieties for organic farming.

Further meetings are planned, as well as a more intensive and concrete collaboration in exchanging plant material and breeding selections for testing on different locations.

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